

REMARKS

Claims 1-13 are pending in the application. Claims 1, 7 and 11-13 have been amended. The specification has been amended. Applicants submit that no new matter has been added to the application by the amendment.

Specification

The Examiner objected to the Title as not being precise or descriptive. Applicants have amended the title to make the title precise and descriptive. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection to the title.

Claim Objections

The Examiner objected claim 13 for as being a hybrid claim. Applicants have amended claim 13 to delete the portions of the claim that make the claim hybrid. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection to claim 13.

Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claims 1-13 under 35 U.S.C. § 102(e) as being anticipated by U.S. patent No. 6,370,093 (Tada et al.). The Examiner rejected claim 1 stating that Tada et al. discloses a control section such that the light being shifted toward the storage layer is decelerated initially at a first acceleration and then at a second acceleration, the absolute value of the second acceleration being smaller than that of the first acceleration (Fig. 14C). Applicants respectfully traverse the rejection.

Tada et al. discloses a method and apparatus for jumping the focus of a light beam in a disc drive from one layer to another layer of a multilayer disc. As shown in Fig. 10 and described at col. 13, lines 53-60, jumping is provided by the switch 65 connecting a jumping instruction voltage JP to the input of amplifier 62. The voltage output of amplifier 62 (lines 52-53) drives the focus coil 702.

Figs. 14B and 14C show the instruction voltage, identified as the acceleration pulse in Fig. 14B and the deceleration pulse in Fig. 14C, applied to the amplifier 62 for jumping the focus

coil 702. In particular, Fig 14C, identified by the Examiner, shows deceleration voltages applied to the amplifier 62 at two levels Vbrk1 and Vbrk2.

As would be appreciated by one skilled in the art, the position of the actuator 701 (Fig. 9) is proportional to the current flowing through the focus coil. 702. The current flowing through the focus coil is the time integral of the voltage applied to the focus coil. The voltage applied to the focus coil is proportional to the jump instruction voltage JP applied to the amplifier 62 input. Because the voltage applied to focus coils is the time derivative of the current through the focus coil, the voltage applied to the focus coil and shown in Fig. 14C corresponds to the velocity of the focus coil. The acceleration of the focus coil is the derivative of the voice coil velocity.

Figs. 14B and 14C, are replicated in the Appendix, to show the results of the above analysis, where the instruction voltage of the acceleration phase is shown to the left of the dashed line and the deceleration phase is shown to the right of the dashed line. Because the application of the jump instruction of Tada et al. causes the position of the voice coil to move, it is clear that the waveform shown in Figs. 14B and 14C, corresponds to the velocity of the voice coil and not to the acceleration of the voice coil. In particular, Fig. 14C shows the voice coil being driven at a constant velocity during each deceleration step. Because the velocity at each phase of the jump of the focus coil disclosed by Tada et al. is substantially constant, the acceleration of the voice coil, being the derivative of the acceleration, is substantially zero at each phase of the jump.

Fig. 4B of the present application shows the velocity waveform associated with a preferred embodiment of the invention. Applying the same analysis as above to Fig. 4B it is clear that the focus coil is driven at substantially constant acceleration during a shift, the acceleration being changed according to the phase of the shifting.

Claim 1 recites, *inter alia*,

"A disc drive comprising: ...a focus shifting section... wherein the control section generates the control signal such that the focal point of the light being shifted toward the data storage layer is decelerated initially at a first acceleration and then at a second acceleration, the absolute value of the second acceleration being smaller than that of the first acceleration and the control signal for decelerating the focal point of the light at the second acceleration at least includes a first type of pulses

that increases the acceleration and a second type of pulses that decreases the acceleration, respectively."

The principles employed by Tada et al for shifting the voice coil are substantially different from that of the claimed invention. The shifting disclosed by Tada et al. is based on a constant velocity positioning of the focus coil while the shifting of the claimed invention is based on a first acceleration and a second acceleration. Tada et al. does not disclose a control signal such that the focal point of light is decelerated initially at a first acceleration and at a second acceleration smaller than the first acceleration because the acceleration disclosed by Tada et al., being substantially zero, is the same for both phases of the deceleration phase.

Further, Tada et al. does not disclose a control signal for decelerating the focal point of the light at the second acceleration which includes at least a first type of pulses that increases the acceleration and a second type of pulses that decreases the acceleration, respectively, as recited in amended claim 1.

For the above reasons, Applicants submit that Tada et al. does not anticipate amended claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the 102 rejection of claim 1.

Amended claims 11, 12 and 13 are allowable for the same reasons that amended claim 1 is allowable.

Further, it is respectfully submitted that since amended claim 1 has been shown to be allowable, claims 2-10 dependent on amended claim 1 are allowable, at least by their dependency. Accordingly, for all the above reasons, Applicants respectfully request reconsideration and withdrawal of the § 102 rejection of claims 2-10.

Conclusion

Insofar as the Examiner's objections and rejections were fully addressed, the present application is in condition for allowance. Issuance of a Notice of Allowability of all pending claims is therefore requested.

Respectfully submitted,

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